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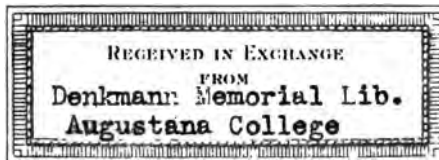
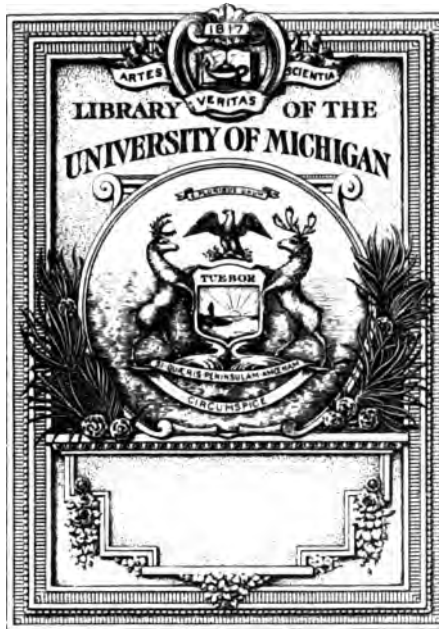
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no. 2

An
Old Indian Village.

BY

JOHAN AUGUST UDDEN.

ROCK ISLAND, ILL.
LUTHERAN AUGUSTANA BOOK CONCERN, PRINTERS.
1900.







A piece from a chain mail, found on the old village site on Paint creek, McPherson county, Kansas.



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AUTHOR'S NOTE.

In the fall of 1881, while engaged as instructor in Bethany Academy, now Bethany College, at Lindsborg, Kansas, one of my scholars called my attention to some mounds south of the Smoky Hill river, where various antiquities had been picked up by the settlers. I visited the locality and saw that it gave promise of interesting finds of aboriginal relics. Here was something worth taking care of. During the subsequent seven years I frequently went to the place, sometimes in company with fellow teachers and with students. The contents and the structure of the mounds were noted and their locations were marked on a small plat of the land. In course of time a collection of relics accumulated. This is yet intact in the possession of the institution in whose service I was then employed, and additions are still being made by my successor Professor J. E. Welin.

At the Emporia meeting of the Kansas Academy of Science in 1886 I made a brief report of my observations on these antiquities. But it was impracticable at that time to present the details. It seems that these mounds and their relics are of more than passing interest and in a way are representative of the archaeology of the state. Before I parted with the material which had been secured up to 1889, I concluded to write an account of the collections then on hand. This account has served as a basis for the present paper.

In preparing the following pages I have deliberately had two objects in view. I have sought to present some brief and correct descriptions of a collection strictly limited to one single locality. This is done in the hope that the descriptions together with the photographic reproductions presented in the figures and plates may prove serviceable to science. The author is, however, no archaeologist. This will be his last as well as his first paper bearing on topics of this kind, unless, perchance, he should again find his residence in the front yard of some prehistoric domicile. I have also sought to write these few pages in such a way that they may prove profitable reading to such of the general public as are interested in the study of Indian relics. It is believed that the material lends itself to such a double purpose.

*The average American has a scientific instinct, which he is fond of cultivating wherever he be. Many farmers, merchants, and professional men in the West are making small collections of Indian relics. Should this paper come into the hands of collectors or students of this class, I hope that it may whet their appetite for more and better literature of the same kind. I also hope that it may aid and encourage them in their efforts to study and to take care of the antiquities **found in their own immediate vicinity**. To do this is at the same time their particular privilege and their special duty to the cause of science.*

To former pupils, fellow teachers, and others who aided in making the explorations on Paint creek I extend my thanks and my greetings of most pleasant recollections. In particular I keep in grateful remembrance the kindly interest, aid, and valuable advice always freely bestowed by the venerable pioneer and scientist Dr. John Rundstrom, formerly of McPherson county, Kansas. For special aid in preparing the paper I am under obligations to Dr. C. A. Sorensson, president of Bethany College, to Professor Frank Nelson, Superintendent of Public Instruction of the State of Kansas, and to Professor J. E. Welin of Bethany College.

The photographs for the illustrations were, with one exception, made by Mr. B. G. Gröndahl of Lindsborg, Kansas, and figures 6 and 27 were drawn by Professor Olof Grafström of Rock Island, Ill.

J. A. U.

Augustana College, May 1st, 1900.

INTRODUCTORY.

The monuments left by prehistoric races in the United States are much more numerous in the eastern part of the Mississippi valley than over the Western Plains. This is plainly shown on a map issued some years ago by the Bureau of Ethnology and prepared to exhibit the geographical distribution of prehistoric works east of the Rocky Mountains.* From the Mississippi river and eastward, the localities of mounds and other prehistoric works appear numerous and crowded, while westward from the great river they are few and scattered. Evidently in prehistoric times as at present the more fertile and more richly watered eastern plains afforded a more congenial environment to the inhabitants than the less favored western country. In another respect, also, the monuments of early man in America bear witness to a comparatively small population in prehistoric times westward from the great river. On the Western Plains we find none of those magnificent earthen structures, that were erected by the prehistoric people of the Ohio valley and by those who dwelled near the Mississippi. The conditions of existence in the west evidently did not result in the development of such powerful communities as could spare the energy needed for the construction of great mounds.

* Catalogue of Prehistoric Works east of the Rocky Mountains, by Cyrus Thomas, Smithsonian Institution, Washington, D. C., 1891.

But the greater observed frequency of antiquities east of the Mississippi river is to some extent due to a less complete knowledge of the western territory. A number of explorers have been at work in the eastern territory for more than three quarters of a century, while comparatively few have paid any attention to archæological explorations on the west slope of the great central valley, and this for only the last few decades. This region has only tardily received the attention it deserves. There can be no doubt that future work will bring to light many more localities in the west where prehistoric man has left traces of his existence. Some recently made discoveries give decided promise that this will be the case. In the last few years Mr. J. V. Brower has located some sixty hitherto unknown sites of aboriginal villages in the eastern part of the state of Kansas,* and others have reported similar localities from the region north of this state.

From such explorations in Kansas as are known to the author of this paper, it appears that the antiquities in this state are associated with two distinct types of mounds: burial mounds and elevated dwelling sites. Many of the latter, perhaps the greater number, are no mounds at all but merely the flat surface of the ground where the dwellings of an earlier race have once been standing. These would never be noticed, were it not for the relics of household art, chase, and warfare scattered about the place. But frequently there occur

* *Memoirs of Explorations in the Basin of the Mississippi*, Vol. II, Harahey, by J. V. Brower, p. V., St. Paul, 1899.

together with these relics heaps of earth a foot or two high and perhaps a rod wide. These village sites, as they have been called, do not occupy any conspicuously high places, but usually lie on or near some flat and fertile lowlands as on the border of an alluvial plain. The burial mounds are different. They are higher and somewhat less flat on top. Frequently there is a pile or a layer of rocks within them, and under this, some human remains. They are usually built on high bluffs or on upland hills overlooking some extensive lowlands. They can almost always be found on bluffs near the junction of larger streams and their size is somewhat proportionate to that of the confluent waters. Mounds of this kind have been reported from near the mouth of the Kansas,* near the junction of the Big Blue and the Kansas, and near the junction of the Republican and the Smoky Hill.** The author has seen some along the Smoky Hill river west of the latter locality and on several of the high buttes in Saline and McPherson counties, and he has opened two in the latter county. One of these is on the summit of the highest butte of the Smoky Hills and the other is west of Gypsum creek near the northeast corner of McPherson county. Both mounds were partly built of rocks, under which there were charred human bones and some roughly chipped flints. In the present state of our knowledge of the antiquities of Kansas we are hardly justified in making any conjectures as to whether these two types of mounds

* Traces of the Aborigines in Riley County. Prof. G. H. Failyer. Trans. of the Kansas Acad. of Sci., 1879—1880, p. 132.

** Kansas Mounds, F. G. Adams. Trans. of the Kansas Acad. of Sci., 1877—1878, p. 51.

are the products of two different people or whether they have been made by the same race for different purposes. In either case there is little doubt that the burial mounds served some purpose in connection with some mortuary or religious customs, or possibly military practices, among entire tribes or nations, while the dwelling sites merely mark the place of the abode of some household or clan, occupied in ordinary and peaceful every day pursuits.

THE PAINT CREEK DWELLING SITES.*

On the west bank of Paint creek about a mile and a half south of the Smoky Hill river in McPherson county there is a group of some fifteen low mounds which must be classified as dwelling sites in an aboriginal village. They are scattered over the southeast quarter of the northwest quarter of section twelve in township eighteen south and range four west of the sixth principal meridian. For the most part the group occupies a gentle slope to the southeast and east, which extends from the left bank of the creek. The mounds do not seem to be arranged in any particular order, but the distance separating them is, in most cases, about 125 feet, or a multiple of this distance. (Fig. 1). This left a convenient space between the dwellings. A line running through the outer members of

* These are the same mounds that Mr. J. V. Brower has called the Udden Village Site in his *Quivira*, Vol. I, *Memoirs of Explorations in the Basin of the Mississippi*, p. 55. It is from no disregard for the distinguished explorer that the present author prefers to here retain the designation above used.

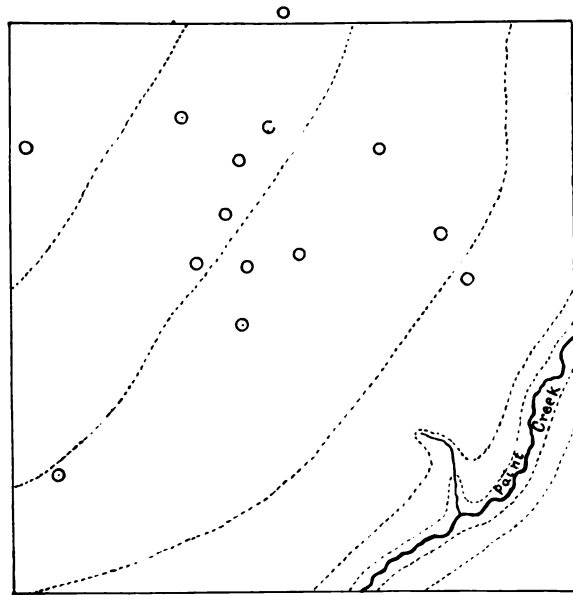


FIG. 1. Plat of the mounds on the old village site on Paint creek in McPherson county, Kansas. The plat covers the southeast quarter of the northwest quarter of section twelve, township eighteen south, range four west of the sixth principal meridian. The dotted lines are contour lines, with ten feet intervals.

the group would inclose an area of about twenty acres. The site may have been chosen with regard to convenient access to water and fuel. There are some good springs in the creek a short distance to the south and there is some small timber along its banks. In other respects the choice seems to have been equally fortunate. To the south and west there is a gravel containing boulders of chert, from which darts and scrapers could be made. The southeast slope of the ground would tend to modify the severity of the northwest winds in winter. Fishing was profitable in the Smoky Hill river near by to the north. The surrounding hilly slope of the upland and the river bottoms to the north afforded a variety of game at all seasons. It was an ideal village site for a savage tribe.

STRUCTURE OF THE MOUNDS.

Each mound is circular in form and has a diameter of from twenty to twenty-five feet. None are more than three feet high. The average height is somewhat less than two feet, and some rise only slightly above the ground. The material of which these mounds are composed is principally loose soil or mud, which is heaped up on the surface of the prairie. On digging down the material was found to be soft until the original prairie level was reached, when the ground became hard. Below this it had apparently never been disturbed. Through the upper loose soil there were all sorts of relics, mostly broken. There were also broken bones of animals, pieces of pottery, here and there bits of charcoal, pockets of ashes, flint chips, various kinds of arrowpoints, scrapers, and knives of flint. Occasionally small blocks of sandstone or limestone were met with, which had been subjected to the action of fire. It was not possible to detect any order in the arrangement of the contents of the mounds and there were no buried human remains. Just how the mounds were built seems uncertain. The mud perhaps accumulated inside the dwellings during a repeated residence of the natives, which occurred at some certain season of the year. All the materials found imbedded, were such household goods as may be supposed to have become useless to the inhabitants, or such as may from time to time have been lost. Most of them were broken. The pockets of ashes occasionally found may mark the site of the places where fires were



FIG. 2. Hoe, made from a shoulder blade of the bison.
Reduced about $\frac{1}{3}$.

made. Possibly the ground was built up for the purpose of keeping the run-off away during rains. If such was the case, additions must have been made from time to time, for discarded household articles are found in the lower part of the heaps as well as in the upper. Evidently the mounds were not completed all at once. The bones found in the upper part are not as far advanced in decay as those found near the bottom. Indeed it seems possible that the mounds may have been built up from wind-blown dirt and sand settling in dwellings which were left vacant during some season by a nomadic tribe which occupied them during only a part of the year.

ANIMAL BONES.

The abundant presence of animal bones testifies that the people who lived here secured a great part of their sustenance by hunting. The meat of the bison must have been their staple food. The long bones of this animal have almost always been broken. Evidently the marrow was eaten. Considering the great number of these long bones there was a noticeable scarcity of skulls, ribs, and vertebrae. This circumstance may be taken to indicate that the hunters were in the habit of leaving in the field such parts of the bison as did not furnish the most suitable food. Bones of the antelope, the wolf, the wild-cat, the skunk, and the wild turkey were also observed, as well as the vertebrae of various fishes, and the valves of common river clams.

ARTICLES MADE FROM BONE AND SHELL.

Bones were manufactured into various kinds of implements. The shoulder blade of the bison is frequently found beveled on the vertebral border in such a way as to suggest that it has been used as a spade or as a hoe (Fig. 2). From the fragments of the long bones gouge-shaped tools were prepared by beveling one end on the concave side (Fig. 3). About a dozen of these gouges were found, two of them entire, the others being more or less fragmentary. It seems probable that such tools may have been useful in the preparation of hides, or for digging in the ground. One piece of a bone, about eight inches in length, evidently a part of a rib of a bison, was marked by a number of transverse grooves. This may have been some sort of a record or calendar (Fig. 4). Three specimens



FIG. 3. Gouge-shaped tool made from a long bone of the bison. Reduced about $\frac{1}{2}$.



FIG. 4. Notched record on a rib of the bison. Slightly reduced.

of clavicles of some animal were cut off at both ends and smoothed and polished as from wear. It has been suggested that these may have been used as hair-pins (Fig. 5). One specimen of the lower jaw of a bison had the teeth worn down straight and smooth to about half their length, as if rubbed against a concave object. The lower end of a tarsal bone of a prong-horn antelope was detached by a circular groove running around the entire bone. There were three tools of bone shaped with one smooth and rounded end, very much like the handle of a tooth brush and marked by irregular transverse cuts near the other end (Fig. 5). These were perhaps used as flakers in shaping flint tools, for they can still be applied so as to detach small flakes from flint chips. This is described by some ethnologists as being done by holding the flaker firmly in one hand and pressing it against the flint, which is placed between the bone and the thumb and held in the other hand (Fig. 6). In his paper on *Arrowpoints, Spearheads, and*

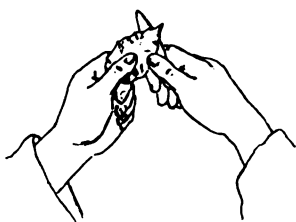


FIG. 6. Method of chipping flint with a bone tool.

Knives of Prehistoric Times Dr. Thomas Wilson has mentioned some similar objects, which are believed to have been used in this way. He says they are usually made of deer horn and are "short and round with a point like one's

little finger". It is difficult to see for what other purpose such bones could serve.

A few long beads, made from bones of birds, were picked up (Fig. 5), as were also some bear's teeth.

Two large *unio* shells were found, which had been ground round on the edges and carefully polished so as to resemble spoons. These were in a far advanced state of decay and fell to pieces

before they could be properly cared for. It may be of interest to note that these shells, as near as the author could ascertain, belonged to a species which inhabits the water of the Smoky Hill river.



FIG. 5. Figure to the left: hairpin? made of bone. Middle figure: bead made from the bone of a bird. Figure to the right: Flint flaker? made from bone. All slightly reduced.

EXPLANATION OF PLATE I.

FIG. 1.

A handle stuck with its upper end to the rim of a vessel. The lower end is inserted in a perforation and strengthened with a bracing ring.

FIG. 2.
Like fig. 1.

FIG. 3.

A handle with both ends inserted into perforations and braced with rings of clay.

FIG. 4.

A handle with both ends inserted into perforations and braced with rings of clay.

FIG. 5.

Like fig. 4.

FIG. 6.

Like fig. 4. The bracing ring is specially conspicuous below.

FIG. 7.

Like fig. 4. The bracing rings have fallen off.

All the figures are slightly reduced.



PLATE I.



POTTERY.

All through the material of the mounds there was a great number of broken pieces of earthenware, several hundreds of which were gathered up. This earthenware is made from a clay which is mixed with sand, ground shells, or bone. It does not show any great skill on part of the workmen. Most of the vessels have been made with little care. This can be seen in the variations in the thickness of the broken pieces and in their uneven edges wherever these follow the upper rim of the vessels. Finger marks are often to be found on the surface of the sherds. The inferior quality of the workmanship is also evident in the method of attachment of the handles and in occasional rude attempts in decoration. The burning also seems uneven and imperfect. Only one vessel was found in nearly entire condition, and the workmanship of this was greatly superior to that of the rest.

Forms and Kinds of Vessels. It is not possible in every instance to make conjectures as to the real shape of the vessels that are thus found only in broken fragments. Some are large enough to indicate the general

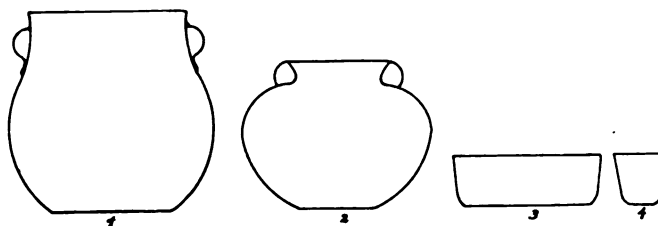


FIG. 7. Various forms of earthenware.
1) Large jar. 2) Smaller jar. 3) Bowl. 4) Cup.

EXPLANATION TO PLATE II.

| | | | |
|---|--|---|---|
| <p>FIG. 1. A handle ornamented with a line of round indentations.</p> | <p>FIG. 2. A broken handle ornamented with three parallel grooves.</p> | <p>FIG. 3. A broken handle ornamented with a protruding knob.</p> | <p>FIG. 4. A small handle, stuck on, and produced at each end into an ill-defined knob.</p> |
| <p>FIG. 5. A handle ornamented with a single straight groove.</p> | <p>FIG. 6. A large handle with a small ornamental knob at the upper end.</p> | <p>FIG. 7. A handle embellished with two parallel shallow grooves and two rows of indentations.</p> | |

Figures 1, 3, and 5 are slightly reduced.



PLATE II.



form. The greater number appear to have been large jars, about a foot in diameter and from eight to ten inches in height, with an opening more narrow than the widest part (Fig. 7, nos. 1 and 2). The upper rim was either vertical or more or less abruptly flaring. One fragment indicated a form quite similar to that of the modern tea-cup (Fig. 7, no. 4). Another must have been a part of a wide elliptical bowl (Fig. 7, no. 3).

Methods of Fastening the Handles. Handles were attached to the rim of all large pots. There were two methods in use for fastening these to the vessel. One was that of perforating the sides of the vessel and inserting the ends of the handle into the perforation and then bracing it by placing a ring of clay around the inserted ends (Plate II, figs. 4, 5, and 7). The other method consisted in merely plastering the ends of the handle to the outer side of the vessel (Plate II, fig. 3). In some cases the two methods were combined and the upper end of the handle was stuck on the rim, while the lower end was inserted into a perforation (Plate I, figs. 1 and 2). When the handles are stuck on, there is also often a bracing ring applied to make the joint stronger. The first method was used in larger vessels as a rule, and the latter method was more common in the case of the smaller ones. In many cases when the handle is stuck on, it is too small for the insertion of a finger and may have been used for the purpose of suspending the vessels by means of a thong or string. Near the place of attachment of the two ends of the handle, there is often a protruding knob, which may be absent, however, either above or below (Plate I, fig.

6, Plate II, figs. 3, 4, 6). All of the handles observed, with one exception, were placed vertically. In the case of the exception it extended laterally in a horizontal plane, about one inch and a half below the upper rim of the vessel.

Ornamentation. The style of ornamentation occasionally seen on the common pottery is particularly crude and consists mostly in the placing of linear and



FIG. 8. A potsherd with partially obliterated indentations of some plaited fabric. The impressions are on the outer (convex) surface. Slightly reduced.

dotted indentations on the handles, or ears, and on the upper rim of the vessels. (Plate II). These indentations are arranged in the simplest kind of patterns, such as single, double, or triple lines. No attempts to represent animate objects have been observed on any specimens. The convex surface of a few sherds is painted red. On many pieces

there were some shallow indentations suggesting partly obliterated impressions of some coarse plaited fabric (Fig. 8), which indicates that the vessels were moulded in some sort of plaited form. This is known to have been a common method of moulding clay among the Indians. On the sherd from the bottom of one vessel there was a circular raised ring (Fig. 9). This seems to be too small for increasing the stability of the vessel on the ground and was perhaps rather intended to secure its equilibrium when placed on the head, where Indian water carriers are in the habit of supporting



FIG. 9. A potsherd with an elevated ring, forming the base of the vessel.
Slightly reduced.

them. In one of the mounds there was found, standing in an upright position, a broken fine vessel of large size, not far from fourteen inches in diameter and about a foot high (Fig. 10). The sides of this vessel were quite thin, only little exceeding an eighth of an inch in thickness. The upper outer surface was decorated by straight parallel lines forming V-shaped patterns. Below the widest part of the vessel the outside was smooth. A number of ears adorned the outside of its upper rim. Parts of the upper rim as well as of the bottom were wanting.

In its imperfection of manufacture and in its crude ornamentation the pottery gathered from the mounds is related to that of the aboriginal people in the northern Mississippi valley.* From the tempering it appears



FIG. 10. A piece of a broken ornamented vessel.
Slightly reduced.

that the potters were familiar with the use of ground shells, which is found in the southern pottery, as well as with the use of sand, which was commonly mixed with the clay for the same purpose among the prehistoric people in the north.*

* See Ancient Pottery etc., Holmes, Rept. Bur. of Ethn., Smithsonian Institution, Wash., D. C., 1882—1883, p. 426.

ARTICLES MADE OF CHERT.

Chips and implements of flint are found all through the material in the mounds and are scattered on the surface on the ground between them. Some of the chert contains silicified *fusulinas*. This was perhaps brought from the region of the cherty limestone farther east in the state. Other material resembles that found in the Equus gravel and may well have been taken in the surrounding country. It was manufactured into a variety of objects such as scrapers, knives, arrowpoints, spearpoints, awls, drills, hoes, spades, tomahawks, and hand-hammers.

SCRAPERS.

The scraper was the most common tool made from chert. They are found everywhere. The author collected some two hundred specimens and many have been carried away by others. These implements average one and three-fourths of an inch in length and one inch in width. It is triangular, with a rounded point at one end and a convex wider base at the other (Figs. 11, 12 and 13.) The scrapers occur in all conditions of perfection of workmanship and in all stages of wear and hard usage. There are great variations in size. The length runs from seven-eighths of an inch to nearly four inches; the width, from one to two inches; and the thickness, from one eighth of an inch to two thirds.

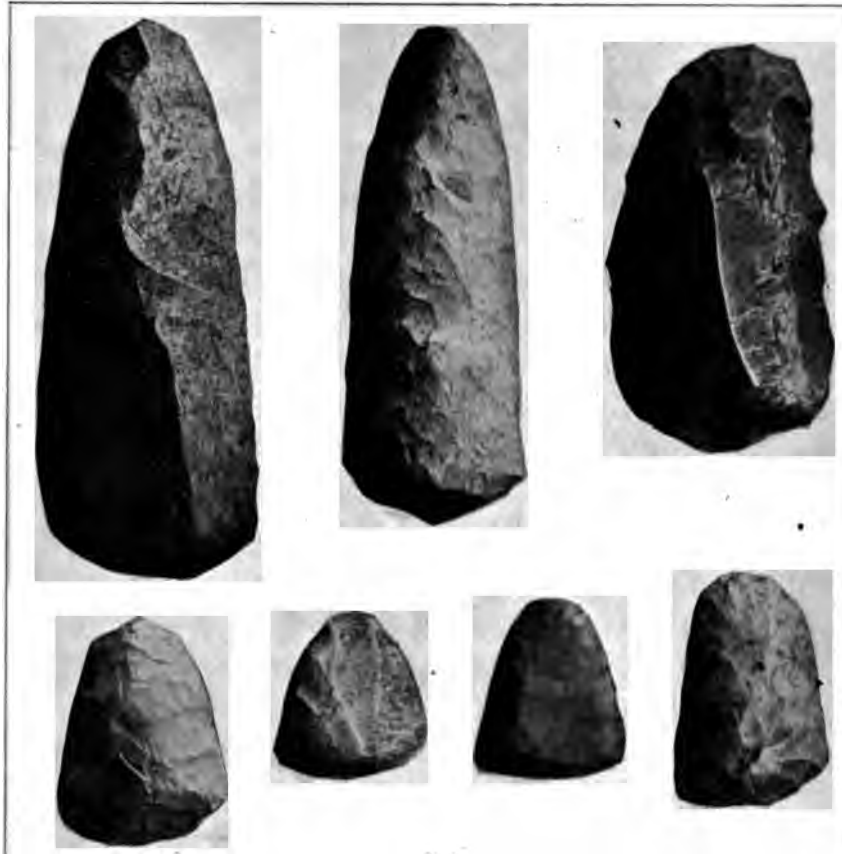


FIG. 11. Typical scrapers. Natural size.

The method of making this tool seems to have determined its form. It is always a flake with one flat side showing no chipping. On this side it was evidently detached from a larger piece of chert. Then the edges were trimmed and straightened by small flaking on the outer convex edges. This was the easiest and quickest way of making an edged tool from chert. Some flakes have been put into service without any finishing whatever, as is evident from their worn unchipped edges.



FIG. 12. Chert scrapers. Typical forms. Very slightly reduced.

But the scrapers that are well finished show the most wear. In two hundred specimens which were carefully examined, one hundred and twenty-two were rounded on the left edge and one hundred and thirty-three showed wear on the right edge. Twenty-six of these specimens were also worn on the edge of the base. In this whole number only fifty-two specimens showed no signs of having been blunted by wear. Of thirty-five roughly finished specimens, twenty-three showed no signs of wear. This indicates a preference among the users for finished tools. Some of the specimens indicate

that the edge, after having been worn round, subsequently was again sharpened by chipping.

The uses to which such scrapers could be applied were no doubt quite varied, such as removing meat from bones and scraping the bark from the shafts of arrows. It seems to be an instrument that was capable of being made very generally useful in primitive industries. It appears to have been held between the



FIG. 13. Typical scrapers. Natural size.

thumb and the forefinger when in service, the flat side no doubt preferably being turned against the thumb. If the users were right-handed, it ought to follow that the average wear of the right edge of the scrapers ought to be greater than that of the left edge. Such appears also to be the case.

IRREGULAR FORMS OF SCRAPERS.

Some scrapers had a lengthened and sharpened point and an irregular base, which did not seem to have been shaped for the hand (Plate III, fig. 5). These did not exhibit any wear of the edges and may have had



FIG. 14. 1, 2, 3. Thin chert flakes, fashioned to knives with sharp edges. 4. Broken specimen of the same kind. 5. Entire knife, finely finished. 6. Roughly finished scraper or knife. 7. A scraper with a rounded spoon-shaped termination. 8. A broken scraper or knife. All natural size.

some special use for which the sharp point was designed. They would be effective instruments for flaying a rabbit or for opening a fish or a fowl. Several scrapers agree in being fashioned with a rounded spoon-like termination instead of a point. (Fig. 14, no. 7). The edges of these are well rounded and worn. Nine specimens were long and narrow and had only been chipped on one

EXPLANATIONS TO PLATE III.

| | | |
|---|---|--|
| <p>FIG. 1. A form of flint tool intermediate between a scraper and a knife.</p> | <p>FIG. 2. A very evenly chipped thin and small knife</p> <p>FIG. 3. A small flake knife only slightly chipped.</p> | <p>FIG. 4. A typical knife, chipped very smooth.</p> |
| <p>FIG. 5. A long and pointed scraper.</p> | <p>FIG. 6. A typical flaked knife.</p> | <p>FIG. 7. The largest scraper found. The reverse flat side of the specimen has a concave flexure of .1875 of an inch in the direction from point to base.</p> |

All figures are the natural size.

PLATE III.



edge, the other edge being a fracture inclined at a high angle to the flat side. Only three of these had the chipped edge worn; one of them was broken. The form suggests an adaptation of an accidentally formed chip for easily obtaining a tool with a long edge.

FLINT KNIVES.

Some of the flint implements which have a particularly sharp edge, may properly be called knives, as they were probably used for cutting. These are made of thin flakes which are more straight and usually longer than the scrapers (Fig. 14, nos. 1, 2, 3, 4, 5, and Plate III, fig. 1, 2, 3, 4, 6). In a lot of fifteen none exhibited the rounded blunted edges commonly seen among the scrapers. By proper effort and care they can yet be used to cut off stems of shrubs and small branches of trees. One of these knives shows a considerable amount of skill and care by the



FIG. 15. A perfect flint knife.

maker (Fig. 15). It is nearly five inches in length and measures almost two inches in width and not more than a quarter of an inch in thickness, with an even, sharp edge all around. Another flint which was sharp enough to be used as a knife, showed no finish whatever.

ARROWPOINTS.

Forty-five arrowpoints of flint were found, and of these only ten were entire. The rest were more or less broken. The greater part are so called bird's arrowpoints. These are about three quarters of an inch in



FIG. 16. Arrowpoints. Natural size.

length and a little less than one half of an inch in width and very thin (Fig. 16). Near the base they are quite thin, and have a triangular form, without any barbs or notches for attachment. Only three of them had such notches (Fig. 16, no. 5), and these otherwise perfectly resembled the other specimens. Another type of arrowpoints was somewhat larger, being a little more than one inch in length and slightly less than one inch in width, generally with notches above a narrow base. No points with true barbs have been noticed on the village site, as far as the author knows.

Flints of this kind are among the most common of prehistoric relics, and the number found in this locality seems rather small in comparison with that of the scrapers. It should be remembered that they are of small size and not quite as conspicuous in the field as the scrapers. Nor is it likely that scrapers were as well taken care of as the arrow-points, which were more difficult to make. Arrows were used and lost on the hunting grounds rather than in the village, beyond the limits of which the scrapers may not so often have been taken.

SPEARHEADS.

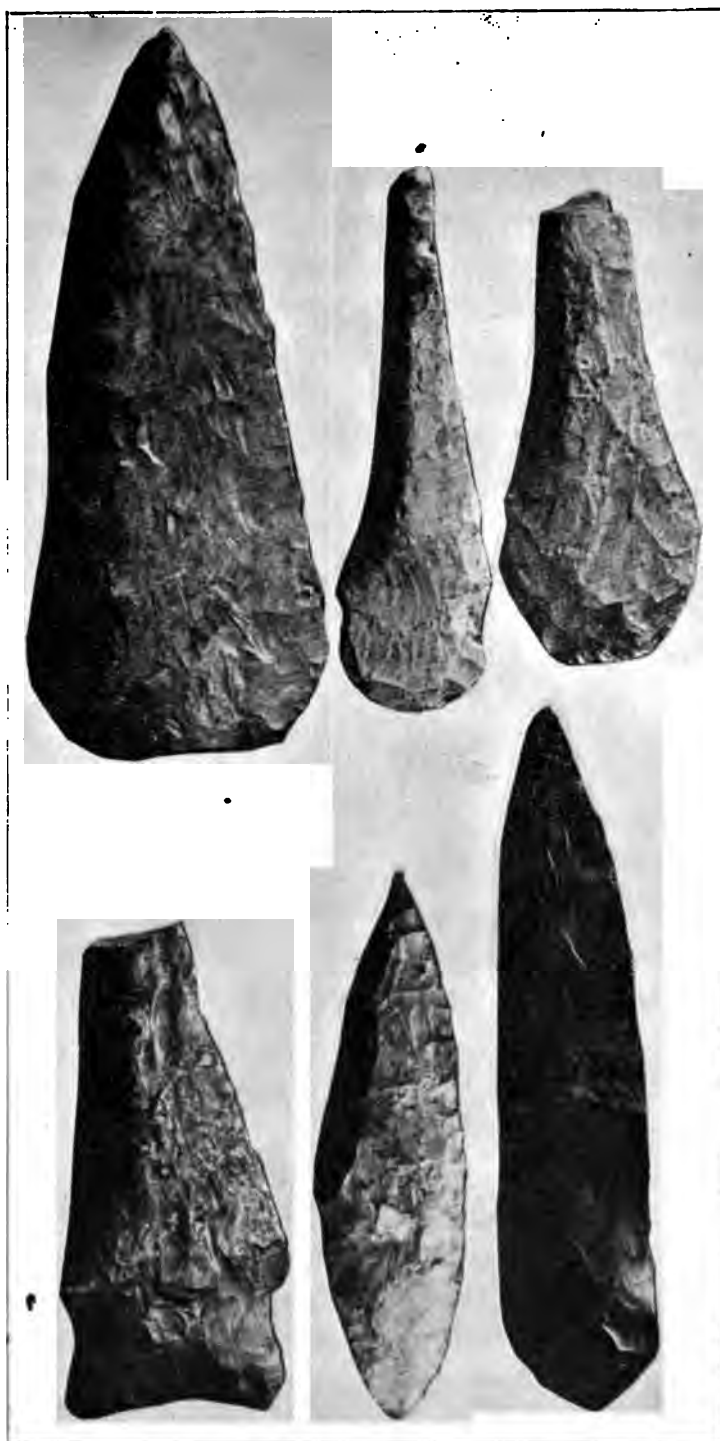
There were also found thirty-two chipped flint implements, which are supposed to have been used as spearheads. Only six specimens were entire. Ten were broken-off points, six of the fragments had the base entire, and ten had both the base and the point broken off. Three different types may be distinguished in the lot. In two of these types the left edge has been beveled upward and the right edge downward in such a way that when thrown the spear would tend to rotate from right to left (Plate IV, figs. 1, 2, 3, 4, 6). In the other type the chipping is equal on both sides of each edge and the edge itself is sharper (Plate IV, fig. 5). There are two kinds of the beveled spearheads. One has a base which is separated from the point by wide notches, evidently intended for strengthening the attachment (Plate IV, figs. 2, 4), while in the other kind the base is drawn

EXPLANATIONS TO PLATE IV.

| | | |
|--|--|--|
| <p>FIG. 1.</p> <p>A large bevel edged spearhead with a flat base. Not much used.</p> | <p>FIG. 2.</p> <p>A narrow, probably several times re-chipped bevel edged spearhead with notched base. Broken.</p> | <p>FIG. 3.</p> <p>A broken, probably re-chipped bevel edged spearpoint with a flat base.</p> |
| <p>FIG. 4.</p> <p>A broken bevel edged spearpoint with a notched base.</p> | <p>FIG. 5.</p> <p>A spearhead with a flat base and equally much flaked on the two sides of the edges. The point is down and the original photograph is somewhat imperfect.</p> | <p>FIG. 6.</p> <p>A bevel edged spearhead with flat base. Made of dark yellow flint.</p> |

All are nearly the natural size.

PLATE IV.



out into a flat point without any notches (Plate IV, figs. 1, 3, 6). Most of the specimens seem to be of this latter kind. The users of these spearheads were probably in the habit of sharpening them by chipping off flakes on the beveled edges, whenever these would become blunt, for in some of the specimens that seem to have been much used, the point tapers very slowly at first and then rapidly toward the base, the whole edge presenting a concave outline instead of a convex one (Plate IV, figs. 2, 3). The edge may originally have been made straight, and sharpened by flaking afterward. The same is also indicated by the nature of the edge itself. The largest of the spearheads were four inches in length and one and three quarters of an inch in width.

Archaeologists have found it difficult to establish a precise distinction between arrowpoints and spearheads.* Some of the above described specimens may have been used for large arrows. The chief difference in the use of the spear and the arrow was that the former was thrown from the hand while the latter was impelled by the bow-string. Both were used in warfare and in chase. The spear was probably also used in fishing.

Dr. Thomas Wilson, who has made a special study of the bevel-edged spearheads, states that in their distribution these flints are confined to the interior part of the United States and to the South. He also regards it as evident that the beveling was intended to make the missile rotate in its flight, and notes that this

* Arrowpoints, Spearheads, and Knives of Prehistoric Times by Thomas Wilson, An. Rept. Smith. Inst., 1897, p. 889.

might have been more easily effected by twisting the feathers on the shaft. It should be remembered in this connection that if the point were not also twisted in a rotating spear, its penetration would no doubt be less, as the cutting edge would be made to traverse a plane which would always be more or less oblique to the plane of the point itself.

AWLS.

About a dozen implements of flint were of such form as to suggest a use like that of the awl, for making perforations through hides. These had an extended sharp point from half an inch to an inch in length,



FIG. 17. Awls made from flint. Very slightly reduced.

about three sixteenths of an inch in width, and almost the same thickness, extending from a base of variable shape (Fig. 17). In one instance this base showed that the implement had been made from a scraper. These points can readily be used for making stitches through leather and, if proper care be taken, for boring small holes in soft wood.

DRILLS.

Related to the awls, there are some carefully chipped drills, which differ from the awls in being thicker, longer, less sharply pointed, more straight, and more uniform



FIG. 18. Drills made from flint. Very slightly reduced.

in width (Fig. 18). These have no widened base to be used as a handle. Most of them show considerable wear on the edges and the nature of this wearing is such as to suggest that it may have been produced by turning the instrument in a hole. The drilling observed in some catlinite pipes, described farther on, may have been made by means of these tools.

LEAF-FLINTS AND TOMAHAWKS.

Quite a number of large chipped flint pieces were found which may have served as hoes or spades for cultivating the soil and for digging in the ground (Figs. 19, 20). Only two of these specimens were found entire. One was six inches long, three and one half



FIG. 19. Hoe(?) made of flint.
Reduced to about $\frac{1}{2}$ of the natural size.



FIG. 20. Hoe(?) made from flint.
Considerably reduced.

inches wide, and three-fourths of an inch thick. Some of them must have been about a foot in length, perhaps six inches wide, and about an inch in thickness. They are oval in shape and are chipped to an irregular edge all around. They resemble the leaf-flints common in the mounds in the Mississippi valley. One large flint is evidently a tomahawk (Fig. 21). It is nearly five inches long, and has a wide constriction, produced by flaking around the middle, dividing it into two lobe-like ends. This constriction is worn smooth and polished by the handle to which it had been fastened.

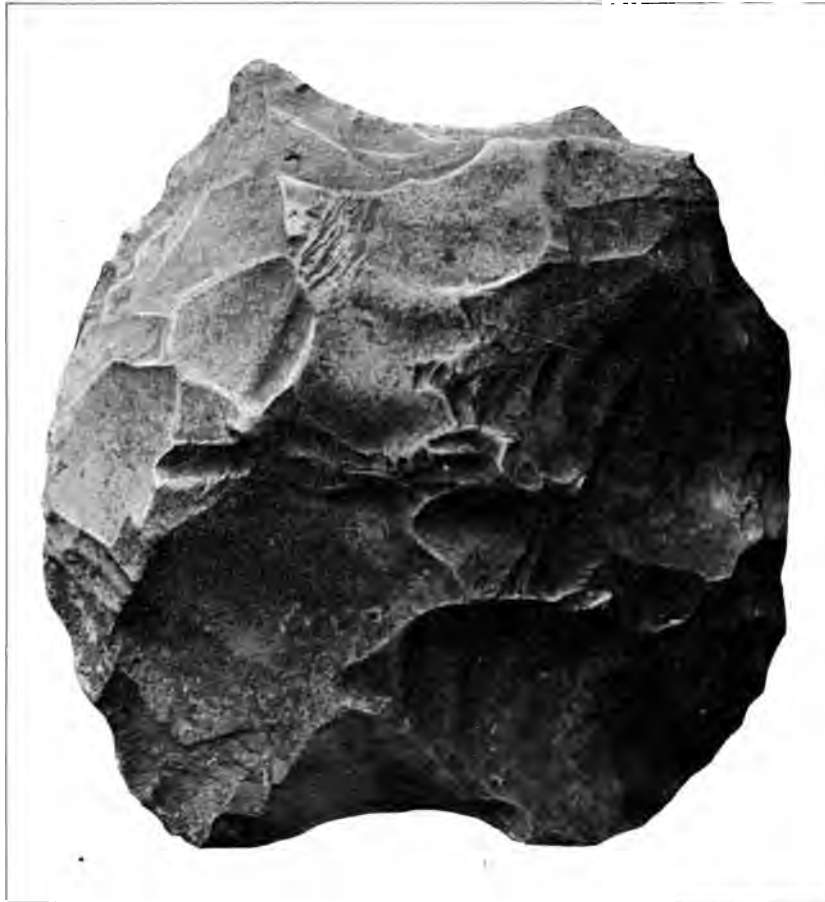


FIG. 21. Tomahawk made from flint. Somewhat reduced.

HAND HAMMERS.

Some irregularly shaped flint pieces were perhaps raw material for the manufacture of implements. Others were rounded and battered and have probably been used as hand hammers, as balls in games, or as nut crackers (Fig. 22).

ARTICLES MADE FROM SANDSTONE.

Grindstones. Several kinds of useful implements were made from sandstone. The most important of these were perhaps the grindstones, or metates and pestles (Figs. 23, 24). These are sandstone slabs some eighteen inches long, ten inches wide, and from two to six inches in thickness. They have a shallow concavity on one of their flat sides. This hollow was evidently produced by wear in grinding. The upper stone, or pestle, as it may be called, was about eight inches in length, three and a half inches in width, and about two inches in thickness. It was convex on both sides, but more flattened on the side which was applied to the lower stone. Three entire and several broken lower stones have been found on the site of the mounds, and more than a dozen pestles. Prof. J. E. Welin has kindly furnished the following measurements of these stones.



FIG. 22. Battered hand hammer made of flint. Reduced to about four-fifths of the natural size.

MEASUREMENTS OF METATES.

| Number. | CONDITION. | LENGTH in inches. | WIDTH in inches. | THICKNESS in inches. |
|---------|---------------------------|----------------------|---------------------|-------------------------|
| 1 | Entire (Fig 23). | 21. | 14. | 6. |
| 2 | Entire (Fig 24)..... | 18. | 9.2 | 3. |
| 3 | Entire..... | 16.5 | 10. | 3.8 |
| 4 | Much worn, and broken.... | 10.5 | 15.5 | 5. |
| 5 | Entire..... | 14. | 8.2 | 1.5 |
| 6 | Entire..... | 9.5 | 5.5 | 1.6 |
| 7 | Broken at both ends | 5.5 | 9. | 2.2 |

MEASUREMENTS OF UPPER OR HAND GRINDSTONES.

| Number. | CONDITIONS. | LENGTH in inches. | WIDTH in inches. | THICKNESS in inches. |
|---------|--|----------------------|---------------------|-------------------------|
| 1 | Entire..... | 10. | 3.8 | 2.6 |
| 2 | Entire..... | 9.2 | 3.7 | 2.9 |
| 3 | Entire..... | 8.7 | 3.6 | 1.8 |
| 4 | Entire..... | 8.7 | 3.8 | 1.7 |
| 5 | Entire..... | 8.2 | 3.6 | 2. |
| 6 | Entire..... | 8. | 3.5 | 2.2 |
| 7 | Entire, much worn..... | 7.2 | 3.5 | 1.4 |
| 8 | Entire..... | 7. | 2.7 | 1.6 |
| 9 | Entire..... | 6.5 | 3.3 | 1.7 |
| 10 | Entire..... | 6. | 3.2 | 1.4 |
| 11 | Entire..... | 6.2 | 2.8 | 1.6 |
| 12 | Entire..... | 6.2 | 3.7 | 1.7 |
| 13 | Entire..... | 4.7 | 4.1 | 1.4 |
| 14 | {Entire, but changed into} a mallet by cutting a groove around the middle} | 5.7 | 3.7 | 3.2 |
| 15 | | 5.2 | 3.3 | 1.7 |
| 16 | Imperfectly shaped..... | 8.2 | 4. | 1.9 |
| 17 | Possibly a broken metate... | 6.7 | 3.6 | 1.7 |
| 18 | Broken..... | 5.5 | 3.6 | 1.7 |



FIG. 23. Much worn large lower grindstone, or metate, with a hand grindstone, both made from sandstone.
The metate is twenty-one inches long.

Most, if not all, of these grindstones are made from the Dakota sandstone. Specially indurated blocks have been selected. The metates have not all been dressed to their present form. A few appear to be merely broken, oblong, irregularly rectangular blocks, worn smooth on one side. More pains were taken with the hand grinders. Some slightly worn specimens of these show the pick marks of the dressing tool, whatever that may have been. Other ones have been further smoothed by special grinding or by wear in use. Several specimens bear the mark of long continued service, as do also most of the metates. A thickness of nearly two inches has been ground off from the upper face of some of the latter, and from the form of some of the hand stones we must infer that these have been reduced by nearly half of that thickness. There can be no doubt that these stones were used for grinding corn. Their number and condition testify that this grain was an important part of the food among the natives who used them. It is quite evident that these people must have had some knowledge of agriculture.

ARROW-SMOOTHENERS.

Thirty-five specimens of arrow-smootheners were taken up out of the material of the mounds (Figs. 25, 26.) These were all made from Dakota sandstone. Only five seem to be entire specimens. Of thirty broken ones quite a number show unmistakable evidence of having been used after they were broken. In one instance two



FIG. 24. Metate, or grindstone, made from sandstone, with hand grindstone of same material. The hand grindstone is turned over, so as to show the lower face, which has been worn flat. The lower stone measures eighteen inches in length.

such pieces were found to fit together endwise by their fractured surfaces, while one of them had its sides considerably more worn than the other (Fig. 27). These implements are pieces of sandstone of suitable size and

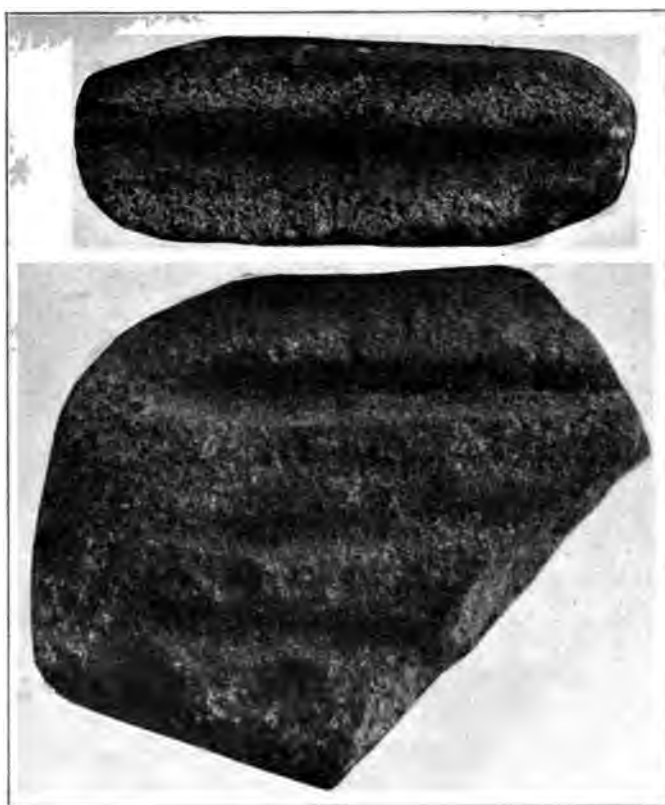


FIG. 25. Arrow-smootheners made from sandstone. The upper specimen shows the typical form. The lower specimen is perhaps a piece of an arrow-straightener. The grooves run out before reaching the end of the stone. Slightly reduced from the natural size.

shape for being held in the partly closed hand. They have one or more longitudinal grooves on one or several sides. It may be that the arrow-shafts were not the only objects ground on these stones, for the grooves are not always round. Some of the grooves have deep-

enings, widenings, and turns, and such stones cannot have been intended for use in smoothing a straight stick. The greater number of forms of this kind were probably used in straightening crooked arrow-shafts, as has been suggested in a recent paper by Dr. Thomas Wilson. Some specimens which seem well adapted for such a purpose, are wider than the rest and have on one side two or three parallel grooves, which terminate before coming to the end of the stone (Fig. 25). In the straightening process the crooked part of the shafts are supposed to have been pressed into these grooves. The stone was probably heated for the purpose of temporarily softening the wood. Such a procedure would account for the fact that nearly all the stones of this kind were broken across the middle.



FIG. 26. Arrow-smoothener, made from sandstone. Reduced to $\frac{1}{4}$ of the natural size.

CUPPED STONES.

Some pieces of sandstone of irregular shape had cup-like cavities on their flat sides. These cups were about an inch or an inch and a half in diameter and had a

depth of a little more or less than a quarter of an inch. It is believed that these may have served as mortars for preparing paint used in personal decoration.



FIG. 27. Broken arrow-smoothener. Left fragment worn after breaking. Reduced to $\frac{1}{2}$.

CATLINITE PIPES.

In the collection are four fragments of catlinite pipes (Fig. 28). Three of these were from very finely finished specimens, which, it may be supposed, had been used for some time and then broken by accident. One of them was the elbow of a pipe which had never been finished. Its outer surface showed the coarse scratchings made in grinding it into shape. The polishing was perhaps left until after the drilling of the holes, and in this case the drill went too far to one side so as to break through, thus causing the specimen to be discarded. The nature of the ends of the perforations show that the drill was not a hollow reed, but solid and somewhat pointed. One of the fragments was ground on the fractured surfaces and may perhaps have been carried about as a totem. Two small pieces of catlinite appeared to be chips struck off by the workman in roughly shaping the pipes. On a farm southwest of the site of the mounds, several finished and entire pipes have been picked up and also a piece of pipestone about three inches square and one inch in thickness. The

pipes are about two inches long, with a short bend near the end for the attachment of the stem. They are not



FIG. 28. Uppermost figure: Small catlinite pipe. Lower left hand figure: Piece of worked catlinite. Right hand figure: Fragment of a broken pipe (unfinished). All slightly reduced.

much more than five eighths of an inch in their greatest width, and the perforation is about three eighths of an inch in diameter. The piece of catlinite must have

been a stone in the rough intended for the manufacture of pipes. Pieces had been taken off from three of its edges by cutting grooves on both sides and then breaking along the grooves. On one side the groove is crooked, as if the part broken off had been intended for an elbow pipe. The two flat sides were somewhat convex and smooth and polished, as by wear. It was no doubt brought from the pipe-stone quarry in Minnesota and kept as a precious article by some native, who finally lost it. The small pieces taken from the mounds on the old village site, indicate that those who lived there had communication with the same distant place, either directly or through the channels of primitive trade. All of the pipes found, broken as well as entire, belong to the Siouan type as defined by McGuire.*

ARTICLES MADE FROM VARIOUS MATERIALS.

Stone Mallets. Several implements taken on the site of these mounds must be classed as mallets, or large hammers. These consist of cylindrical or slightly quadrangular rounded stones having a groove around the curving surface midway between the two ends (Plate V). Most of these implements were made from brown or red, strong sandstone, but two were of limestone. One consists of a highly ferruginous and tough sandstone or quartzite, with a bright red matrix. The sandstone in this specimen and that in some of the others does not resemble any of the local modifications of the

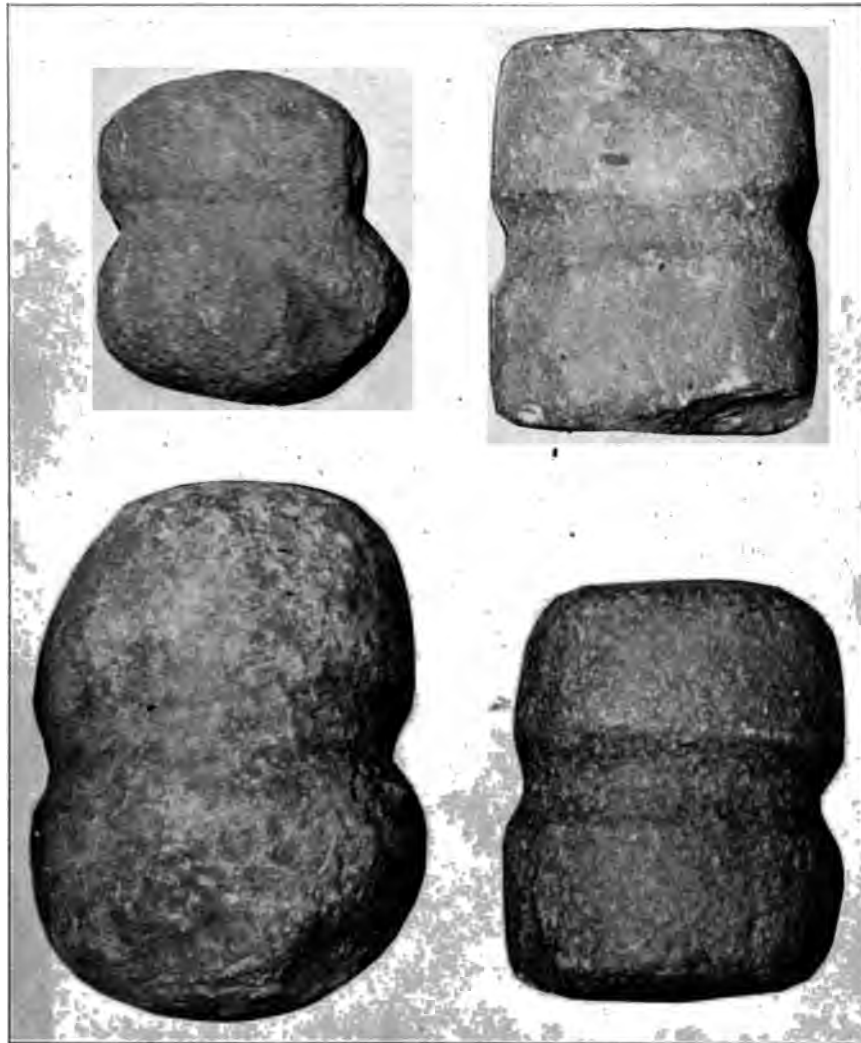
* Ann. Rep., Smithsonian Institution, 1897, p. 571.

EXPLANATIONS TO PLATE V.

| | |
|--|--|
| <p>FIG. 1.</p> <p>Imperfectly shaped small mallet, made of local Dakota sandstone.</p> | <p>FIG. 2.</p> <p>Perfectly formed mallet, made from a hard ferruginous sandstone of unknown locality.</p> |
| <p>FIG. 3.</p> <p>Large, old and worn mallet, made of limestone.</p> | <p>FIG. 4.</p> <p>Perfectly formed mallet, made from a hard ferruginous sandstone or quartzite. Probably not much used. Pickmarks are still to be seen on the surface.</p> |

Reduced to slightly less than one half the natural size.

PLATE V.



Dakota rock in this vicinity, known to the author, nor do they resemble the usual form of the Sioux quartzite. The rock has no doubt been brought from some distance, and its presence here gives further evidence that aboriginal art was not limited to the resources of its immediate surroundings in the raw materials which it employed.

As to the particular purpose for which these implements were prepared it is difficult to form an opinion. The author must leave this to the conjecture of the reader, and to students who have more material for comparison and a better knowledge of the arts and customs of the prehistoric races. When in use they were perhaps attached to wooden handles. These may have been bent around the body of the stone, following the groove, and the bent end tied to the main handle, this mode of attachment being used in the case of stone axes similarly grooved. Mallets of the same size and shape are known to have been in use, probably as hammers or clubs, by some of the Sioux Indians in the region of the Yellowstone.* Such a weapon might be useful in hunting the buffalo or in warfare. The smallest ones are light enough to be thrown from thongs or ropes and to be used like the bolos of the Indians of South America.

Prof. Welin of Lindsborg has made the following measurements of the mallets now found in the collection. Linear dimensions are given in inches.

* See note by F. W. Putnam, *Ethnology*, U. S. Geogr. Surv. West of the 100 Mer., Vol. VII., p. 206.

MEASUREMENTS OF STONE MALLETS.

| Number. | CONDITION AND MATERIAL. | Weight in av. ounces. | Greatest length. | Greatest diameter. | Diameter in groove. |
|---------|-----------------------------------|--------------------------|---------------------|-----------------------|------------------------|
| 1 | Ends flat; hard sandstone..... | 63. | 4.3 | 3.6 | 3.3 |
| 2 | Rounded ends; hard sandstone..... | 53.5 | 4.5 | 4.5 | 4. |
| 3 | Flattened; hard sandstone..... | 53.5 | 4.4 | 3.6 | 3.3 |
| 4 | Irregular in shape; limestone.... | 51. | 5. | 3.9 | 3.5 |
| 5 | Hard sandstone..... | 36. | 4.4 | 3.7 | 3.2 |
| 6 | Hard sandstone..... | 28.5 | 3.6 | 3.2 | 2.9 |
| 7 | Hard sandstone..... | 24.5 | 3.6 | 3.4 | 2.8 |
| 8 | Broken; limestone..... | ? | ? | ? | ? |

THROWING-STONES?

Ten disc-shaped or wheel-shaped stones were found (Fig. 29). These measured about three inches in diameter and from one inch to one and a half in thickness. The most carefully shaped specimens of this description have the circular surfaces flat and the round border straight. In several instances the border is convex, as is also to some extent the flat sides. In some cases there was only a rude approximation to this type. Two specimens were broken in halves. Some were made of limestone and some of sandstone. It is to be inferred that the texture of the rock was of no consequence in the use to which these stones were applied. Perhaps they represent some instruments in games. Their size permits them to be thrown from the hand with comparative ease, and they may then readily be caused to roll for a considerable distance on the surface of the ground.

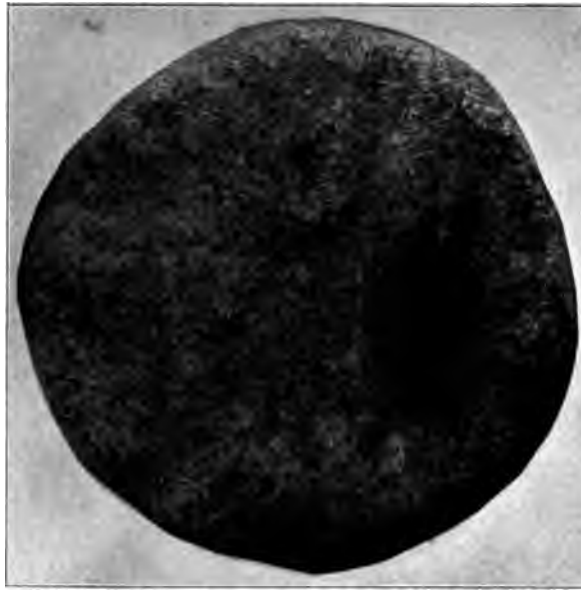


FIG. 29. Disc-shaped throwing-stone. Reduced to $\frac{5}{8}$ of natural size.

A PROBLEMATIC RELIC.

A piece of white quartz, carefully worked and polished, is a relic of somewhat uncertain character (Fig 30). It may be described as a circular piece of rock an inch and a half in diameter, with one side convex and drawn out in the center into a blunt and rounded protuberance about half an inch in height. The other side is concave with a depth in the center of about three sixteenths of an inch below the



FIG. 30. Convex (anterior) side of a cupped piece of quartz. Slightly reduced.

rim (Fig. 31). The convex surface of this specimen is very smooth and almost polished, while the concave surface is less nicely finished. The edge of the disc is a fractured surface. The writer has seen no similar relic described anywhere from our aboriginal races. Its use seems, indeed, enigmatic. The concave side may have served as a paint cup, but this will not explain why the convex side has been so well finished. It has been suggested that the specimen may have served as a weaning-nipple. If such is the case, it is easy to understand why the convex side, with its protuberance, has been finished with such great care. It quite perfectly resembles the human nipple. This theory also explains the concavity on the opposite side. The suggestion is mentioned for what it is worth.

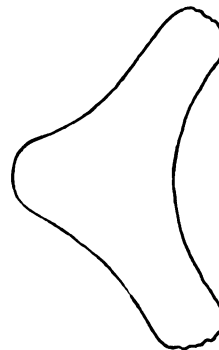


Fig. 31 Outline of a diametral section through a disc-like piece of worked quartz. There is a protrusion like a nipple on one side, and a concavity on the other. Slightly reduced.

A PIECE OF AN OLD ARMOR.

One of the relics found has a special historical interest. It demonstrates that this village was inhabited by Indians after the European race had come over to this continent. In one of the mounds located near the center of the group, there was found at the depth of six inches below the surface, a piece of chain-mail made of iron (Frontispiece).* It measured about two inches square and the size of the oval rings was a little less

* This relic was dug out in the author's presence by Mr. C. A. Hven, now of Garfield, Kansas.

than one half of an inch in length. The metal had suffered much from oxidation and the spaces between the rings were filled with rust so thick that the whole specimen was almost a solid mass. Unfortunately the precious relic was lost. The author took the precaution, however, to have it photographed soon after it was found. So far as the author is aware, the object itself was seen by only two parties who had a knowledge of antiquities of this kind and who could be considered competent to identify it as a piece of chain mail. It was shown to Dr. J. A. Enander of Chicago, then on a lecturing tour in the west. He is regarded as one of the best authorities in America on the antiquities of the Northmen. This gentleman stated that the metal fabric had a close resemblance to that of a Swedish *brynja*, the coat of mail used by the vikings. It was also examined by Dr. John Rundstrom, an accomplished gentleman and naturalist residing near Lindsborg at the time. He is well informed on European antiquities since the time of his residence as a student at the University of Lund in Sweden. In his judgement the relic was a fragment of a piece of chain mail.

On the surface of one of the mounds there were picked up one or two perforated beads of blue glass. Lying out in the open field on the opposite side of a creek from the nearest farm house, built and occupied by a lone bachelor, these beads are not likely to have been lost by recent settlers. More probably they once belonged to some inhabitant in the old village. It is needless to say that the beads were made in Europe or in some European colony in America.

PROBABLE CHARACTERISTICS OF THE TRIBE.

In describing these products of aboriginal art it seemed desirable to classify them as to the nature of the material from which they were made. If we wish to study the people to whom the relics once belonged, their mode of life, their habits, and probable tribal relationships, it will serve our purpose better to make our classification on the basis of the known or probable uses for which the relics once served. It is not the purpose of the author to say much on this phase of the subject. But a few remarks quite naturally suggest themselves in this direction also.

It must be remembered that the uses of some relics are uncertain. Notched bones (see page 18) have been variously regarded as records,* as instruments used in making bowstrings, and as appliances used in weaving. Recently Professor Starr has shown that some Indians use bones of this kind for producing rattling noises in certain dances. To do this another bone is drawn across the notches in rhythmic strokes that accompany the movements of the dancers.**

Disregarding such uncertainties we may, nevertheless, take into consideration the number of each kind of different relics and make a sort of inventory of the stock in hand, and thus draw some conclusions as to the occupations, customs, and wants of the original owners. Such an inventory is presented in the following table.

* See "Marked Human Bones from a Prehistoric Tarasco Indian", etc., Vol. X, Bulletin of the American Museum of Natural History.

** See Notched Bones from Mexico, by Prof. Fredrick Starr, Proceedings of the Davenport Academy of Science, Davenport, Ia., Vol. VII., p. 101.

INVENTORY OF THE VILLAGE RELICS.

| KINDS OF RELICS FOUND. | NUMBER. |
|---|------------|
| IMPLEMENTS USED IN DOMESTIC WORK | <u>240</u> |
| Scrapers..... | 200 |
| Knives..... | 15 |
| Millstones..... | 25 |
| HOUSEHOLD UTENSILS..... | <u>54</u> |
| Earthenware jars (number estimated) | 50 |
| Spoons, made of shells..... | 2 |
| Bowl (earthenware) | 1 |
| Cup (earthenware) | 1 |
| AGRICULTURAL IMPLEMENTS..... | <u>16</u> |
| Hoes and spades, made of flint..... | 10 |
| Hoes and spades, made of bone..... | 6 |
| IMPLEMENTS OF CHASE AND WARFARE..... | <u>87</u> |
| Arrowpoints..... | 45 |
| Spearheads..... | 32 |
| Stone mallets?..... | 8 |
| Tomahawks..... | 2 |
| TOOLS USED IN SPECIAL TRADES..... | <u>56</u> |
| Arrow-smootheners..... | 30 |
| Awls..... | 12 |
| Hand-hammers (for chipping flint?)..... | 5 |
| Drills..... | 6 |
| Flint flakers (bone)..... | 3 |
| OBJECTS RELATING TO PERSONAL ORNAMENT AND COMFORT | <u>10</u> |
| Paint mortars? (cupped stones)..... | 3 |
| Catlinite pipes | 2 |
| Bone beads..... | 2 |
| Hairpins? | 2 |
| Weaning-nipple?..... | 1 |
| OBJECTS USED IN SPORTS AND GAMES?..... | <u>10</u> |
| Throwing-stones | 10 |
| Total..... | 473 |

It will be seen that there are nearly five hundred objects represented in the collection. About half of the number consists of implements which have been used in



domestic work. This is quite natural. Things used about the dwellings would also be lost in their immediate proximity. The scraper is particularly abundant. It was a tool easily prepared (Fig. 27). Its manufacture required no particular skill. When lost it was easily replaced. By far the greater number of the scrapers are entire. They have not been thrown away. They have been lost. With the knives it is different. These were made with greater care and apparently also selected from fortuitously well adapted flakes; such as were thin and straight and had an even grain. There are only two or three entire knives. The others are broken and have evidently been thrown away only after becoming useless. A flint knife was a precious article, worth searching for if lost, and so we find a less number of them now. The many potsherds testify that these people took some pains in preparing their food and perhaps their drink. It is difficult to estimate to what extent they engaged in agricultural pursuits. The small number of implements adapted for tilling the ground seem out of proportion to the number of stones used in grinding the crops. Possibly wooden implements were used in this primitive farming. Or the cultivated land may have been at some distance from the village site and the hoes and spades may have been left and lost out in the field. Or it may be that the natives lived in the village only during the cold season and took up their abode at some other place during summer. The relative abundance of tools useful in primitive handicraft, such as arrow-smootheners, awls, flakers, and also scrapers, suggests that the inhabit-



ants were engaged in such work to a considerable extent, during the time of their stay on these grounds. The colder part of the year would seem to be specially conducive to such occupation.

These people do not seem to have been a warlike tribe. There are only two flints in the collection that resemble tomahawks. Their arrowpoints and spearheads seem better suited for the killing of small game than for the battlefield. But few of the relics can be regarded as implements of war. This may perhaps be taken as an indication that the inhabitants were a peaceful race, who quietly subsisted on the natural resources of the western plains, before the strife had yet begun which was a result of the encroachments of civilization from the East.

ETHNIC RELATIONSHIP.

A guess may perhaps be warranted as to the ethnic relationship of the tribe. We have seen that some fragments of catlinite pipes picked up with the other material were of the so called Siouan type and that the stone mallets are of a kind that is known to have been used by some tribes of the Sioux Indians of the west. The Sioux Indians were to some extent an agricultural people. They raised corn. So did also the inhabitants of this village. They possibly belonged to some tribe of the great Siouan family. But if such was the case, they lived on the outskirts of the Siouan domain. To the south and the west there were other Indians. Those of this village seem to have ground their corn on

mills that are more like those of their southern and western neighbors. Stone metates are more common in the southwest than in the territory to the north. The beveled form of spearheads seems also to be a feature of their rude art, which they had in common with the Indians of the south. Tribes of the Ponca family, as the Wichitas and the Pawnees, have at different times lived on the Arkansas, the Kansas, and the Platte rivers in the central part of the Western Plains. They seem to have migrated occasionally both north and south. Mr. Hodge says that the "Wichitas shifted their settlements from time to time as necessity demanded and that more than one time their settlements were on and north of the Arkansas river."* At an early time their home was farther south. In a border tribe there would inevitably be some mingling of arts and customs of the neighboring nations with those of its own. The use of ground shell as well as sand for tempering the earthenware may have such a significance. Captain Marcy, who visited a Wichita village near Washita river in 1852, says that their "lodges were about twenty-five feet in diameter at the base", and consisted of a frame-work of poles placed in a circle in the ground, bound together with withes and thatched with grass. He also states that they raised corn and other vegetables, using hoes for cultivating the soil, but depended on the chase for their sustenance during the greater part of the year.** It is

* Harahey, J. V. Brower, St. Paul, 1899, p. 72.

** Exploration of the Red River of Louisiana in the year 1852, by R. B. Marcy, p. 77.

quite probable that the Indians occupying this old village were Wichitas or perhaps some of their relatives, the Pawnees. On the basis of the character of the mounds and their relics alone, however, an inference as to their tribal relationship must be regarded as but little more than a guess. But it is none the less interesting to note in this border land of ancient nations a mingling of northern, southern, and western features of primitive industry and art.

A VISIT FROM THE SPANIARDS?

The finding of a piece of chain-mail with the other relics makes it certain that the village was occupied by Indians at least as late as after America had been discovered by the Europeans. At the Emporia meeting of the Kansas Academy of Science in 1886 the author suggested that this relic might have come to the Indians from Coronado's expedition to this region in 1542 and called attention to Col. Simpson's study of the route which this explorer followed in traveling from Tiguex to Quivira showing that he probably passed through the central part of the state of Kansas.* Several old Spanish documents relate the adventures of Coronado. They all state that he marched east from the mountains in New Mexico and across the plains for more than a month. Then selecting forty men he left his main army and marched with these few followers

* Coronado's March in search of the Seven Cities of Cibola," by J. H. Simpson. Annual Report, Smithsonian Institution, 1869, pp. 336—340.

first north, and then northeast for another month or a little more. Here he discovered a country called Quivira, and remained in it for twenty five days, visiting several villages and exploring the country generally, possibly going as far north as the fortieth degree of north latitude. Most of the students of the Spanish papers seem to agree that Quivira was located in the central or in the eastern part of the state of Kansas. Simpson has mapped the probable route that Coronado followed in going out and in returning. On his outward route he is supposed to have entered the present borders of this state somewhere near its southwest corner (Fig. 32). From there he is supposed to have pursued an easterly course over the country of the Cimarron, turning to the north from a point fifty miles or so west of the site of the present city of Wichita and returning from the northwestern part of the state by a more southerly route.

A. F. Bandelier, a well known archaeologist and student of early Spanish history in the southwest, believes that Quivira is to be sought in the central part of the state of Kansas about a hundred miles north of the Arkansas, but he thinks that Coronado's route of march was for most of the way in the territory south of Kansas.*

More recently Mr. G. P. Winship has made an exhaustive and critical study of the Spanish accounts of Coronado's Expedition.** This author doubts that

* Fray Juan de Padilla, by A. F. Bandelier, *American Catholic Quarterly Review*, Vol. XV, p. 551. Also *The Gilded Man*, New York, 1893.

** The Coronado Expedition, 1540—1542, by George Parker Winship, 14th Annual Report of the Bureau of Ethn., Washington 1896, Part I, pp. 329—613.

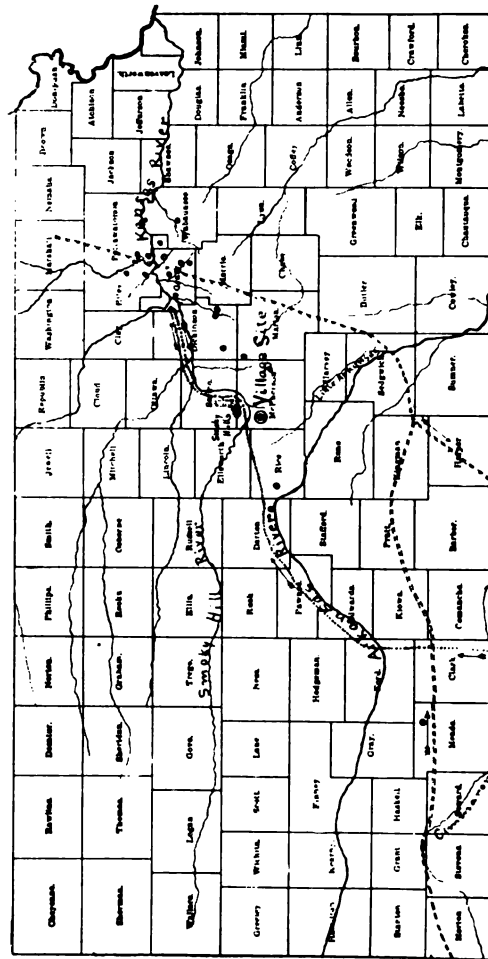


FIG. 32.

Map of Kansas, showing the probable routes of Coronado's march within the state and the location of ancient village sites. ○ The Village site on Paint Creek. ● Other village sites. (Some of these are taken from Brower's Herabey.) - - - Coronado's march according to Simpson. Coronado's march according to Hodge.

Coronado, after leaving the main army, "went much beyond the south branch of Kansas river, if he even reached that stream." Quivira should then have been located to the south and perhaps a little east of the centre of the state of Kansas.

The latest contribution to the history of this expedition is made by Mr. F. W. Hodge,* who is inclined to the opinion that Coronado, after having turned north, crossed the Arkansas river on its south bend not far from the place where Dodge City now stands. It was probably from this point that he marched (according to the Spanish chroniclers) six days to the northeast, following down the right side of the stream, and finding the first native village on the Great Bend. From there he continued to the northeast and "either followed down the Smoky Hill or crossed that stream and also the Saline, Solomon, and Republican forks, reaching Kansas river not far from Junction City." "After learning what they could about the province, the Spaniards then . . . retraced their steps for two or three days, where they provided themselves with fruit and corn for the return journey This place was probably but a few miles from the present Salina" (Fig. 32).

It will be seen from the above that the Paint Creek dwelling site lies in the region which Coronado visited. It is recorded that during the twenty five days he and his forty followers remained in Quivira, he sent out captains and squads in various directions to visit different villages, of which, he says, there were not more

* Harahey, by J. V. Brower, St. Paul, Minn., 1899, pp. 29—73.



than twenty-five.* Taking all of this into consideration it is quite possible that the piece of chain-mail may have been obtained by the natives of these villages, in barter or otherwise, from Coronado's soldiers. Col. Henry Inman has stated his positive opinion that it came from some soldier either of the command of Cabeza de Vaca, Coronado, or of De Soto,† most likely the latter. But our best historians doubt that De Soto's expedition came as far west as Kansas.‡

The archaeological evidence perhaps to some extent supports the view that it came from Coronado's expedition. The accounts we have of the people which he met in Quivira characterize in some respects the residents of the old village, as we know them from their dwelling sites and from the relics which these contain. In the anonymous Spanish document *Relación de Suceso* we learn that the inhabitants of Quivira lived in houses built of straw. There were several villages of these houses. The inhabitants raised corn and made bread. This bread was cooked in fires under the ashes.|| In Jaramillo's narrative we are told that the straw-houses were round and that "the straw of the walls reached down to the ground like a wall". People who have lived on the Plains will realize that in such a shelter the prevalent sandstorms would deposit drifts of dust and sand. In course of time there would then be a

* Winship, op. cit., p. 582.

† The Santa Fe Trail, New York, Mac Millan & Co., 1897.

‡ Narrative and Critical History of America, Justin Winsor, Vol. II., p. 296
Also History of United States, Geo. Bancroft, Vol. I., p. 52.

|| Winship, op. cit., p. 578.

